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PROFESSOR OF CHEMISTRY IN THE UNIVERSITY OF NORTH CAROLINA
PRESIDENT AMERICAN CHEMICAL SOCIETY 1915-'16

THE CAROLINA CHEMIST

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EDITORIALS

The *Cornell Chemist,* now in its fifth year, and the *Illinois Chemist,* the first issue of which appeared in June, 1915, are exchanges that have recently come to our desk. The University of Washington expects to add in April another to the list of chemical department journals.

The students who are giving their time and labor to the Chemist feel that their efforts will have been amply rewarded if the Chemist in any degree renews the enthusiasm of the alumnus for the department or makes him look back with happy recollections of the hours spent in Chemistry Hall.

We hope to make the next issue of the Chemist an Alumni Number. Each alumnus will receive a letter asking for certain information. If you will be kind enough to furnish this you will help us greatly. If you should not get such an inquiry write us something about yourself anyway. Tell us who you are, where you are, what you are doing, and other interesting items for an alumni column.

The many expressions of appreciation accorded the first two issues of the Chemist by alumni and others interested in our

work have been an inspiration to the department to continue its publication and we hope to make it permanent. Henceforward you may expect the Chemist to visit you three times each year—once in the fall and twice in the spring. Your subscription will run from January to January. We shall be delighted to send it to you. In fact, editing it for you is a joy, since love is the reward of our labor. But, dear alumnus, printers are neither romantic nor sentimental. We have knowledge whereof we speak, because we were once a printer's devil. Their souls do not yearn for Venus, but for Argentum and Aurum. Ergo, come across. The annual subscription price is seventy-five cents. We have few advertisers and, consequently, must depend almost wholly on subscriptions for the money necessary to publish. Loyal alumnus, let us have your six bits—or more, if you can make a donation.

We are mailing the Chemist to a large number of high schools of the State, and hope the principals will hand it to the boys, especially the seniors. It will possibly be of interest to the principals and superintendents to know that only eight per cent of the schools teach chemistry. The seventh annual report of the State Inspector of Public High Schools shows that only nine of the eighty-eight city schools and fifteen of the two hundred twelve rural high schools have chemistry in their curricula.

DR. HERTY RE-ELECTED

In December, 1914, when Dr. Charles H. Herty was elected president of the American Chemical Society, an honor was bestowed upon the University that no other similar institution has ever enjoyed, save Columbia. Carolina has twice had the proud distinction of furnishing the president of the organization—Dr. F. P. Venable in 1905, and Dr. Herty in 1915.

His reëlection, in December, 1915, as president for the ensuing year is a greater honor, both to the University and to Dr. Herty. The society has had thirty-two presidents, and Dr. Herty is the sixth one to be reëlected. It has been said that the gain of a distinguished man of science is worth more to an institution than the addition of a $100,000 building. Surely the University has been greatly enriched. Students and alumni rejoice in this new recognition of one whom they love. The Chemist extends heartiest congratulations.

TO THE HIGH SCHOOL STUDENT

There comes a time in the life of a young man when he must decide what will be his life's occupation. It's a serious proposition that requires much consideration and a question that every one must answer for himself. Explanations, encouragement, and facts in regard to various lines of work may be given, but the final decision should be left entirely to the man himself.

In this connection we think it proper to give a few facts to the young men of North Carolina in regard to the chemical industry. Recently eight unsolicited calls for chemists have come to Dr. Herty, head of the department of chemistry of the University of North Carolina, and he had no graduate to offer for the positions. It should be borne in mind that these were calls in addition to quite a number that he had supplied with graduates of the department. Other chemical departments are having the same experience. A short while ago Columbia University announced that the demand for chemists was greater than the supply. These instances show conditions that many American institutions are experiencing. There is an awakening in industrial activities that is calling for chemists, but enough men cannot be found to fill all the positions. We are glad to give these facts to the high school students of North Carolina, hoping that the opportunities in the field of chemistry may be a little better understood, and desire to call attention to the succeeding article, taken from a New York paper:

CHEMICAL ENGINEERS WANTED

Since the beginning of the European war and the resulting increase in chemistry projects in this country the demand for chemical engineers has grown so rapidly that many places are now open. At Columbia yesterday Dean Frederick A. Goetze of the Graduate Engineering School reported that he had received a call from a mining company for several chemical engineers familiar with the iron and steel industry, but that he had been unable to find any recent graduate who was not already well placed.

Dean Goetze took up the matter with Professor Milton C. Whitaker, recently appointed head of the new Chemical Engineering School at Columbia, who reported that the demand for chemical engineers was far beyond the supply. He did not know of any recent student who was not so well satisfied with his present place that he did not care to change.

Some of the places which Dean Goetze has recently been asked to fill carry salaries as high as $10,000 a year. Dean Goetze has also had calls for mining engineers for China and professors for the Philippines.

EARLY HISTORY OF CHEMISTRY AT CAROLINA

DR. F. P. VENABLE

The first one to occupy a distinct and separate professorship of chemistry in this country was Dr. Benjamin Rush, who, in 1769, was appointed to the newly established professorship of chemistry in the University of Pennsylvania. Other institutions, however, were slow to follow the example.

There seems to have been little instruction given in chemistry in the University of North Carolina until 1817, when Denison Olmsted was appointed professor. The professorship was of chemistry alone, but he also taught some geology—chemistry in those days including geology and mineralogy. The first state geological survey in the United States was begun by him here. In 1825 he returned to a professorship in Yale, his *alma mater*. He was succeeded by Elisha Mitchell, who held the position until his death on Mount Mitchell, in 1857. This mountain on which he lost his life, the highest peak east of the Rockies, was named for him.

Dr. Mitchell taught on the first floor of the South building, in a room facing the well. There were no laboratories for students anywhere in those days, but Dr. Mitchell had his own private one. Dr. Charles Phillips wrote of him that "his library and his laboratory showed that he withheld neither time, labor, nor money to keep himself well informed concerning all that was a-doing throughout the world in organic as well as in inorganic chemistry. Indeed, the shelves of his laboratory and of his warerooms fully illustrated the chronology of art in that science. They contained what instruments had been useful as well as what were fittest to survive. His oldest instruments, whether of metal or of glass, were almost all made in Europe. His latest, far simpler, more elegant, and more useful, were made in northern workshops or were the products of his own handiwork." His books are now in the University library. Some of the apparatus, including pieces made by himself, was also in existence in 1880, but was unfortunately destroyed or lost.

Dr. Mitchell made several contributions to the *American Journal of Science* and published two editions of his "Manual of Chemistry," besides "Notes on Natural History." Under more favorable circumstances he would have made a national reputation among the earlier American men of science.

Dr. W. J. Martin followed him in the professorship and held the

position from 1858 to 1867, save for the four years of the Civil War, when he was colonel of a regiment and greatly beloved and esteemed by his soldiers.

A professorship of Agricultural Chemistry was established in 1853 with Benjamin S. Hedrick as professor—certainly one of the earliest in this country. John Kimberly succeeded him in 1856 and remained until the close of the University in 1867, returning for one year after the reopening in 1875. Kimberly left to become Commissioner of Agriculture for the State of Tennessee.

During most of the reconstruction period the doors of the University were closed. Such apparatus as its laboratories contained was abused and badly scattered through vandalism. Portions of instruments were found in cabins some miles from the grounds. Through the loyalty and generosity of friends throughout the State some twenty thousand dollars were contributed for repairs and the purchase of apparatus when the University was reopened in 1875, since the State made no appropriation for the purpose.

Among the few professorships that could be established at that time two were devoted to chemistry, one in Agricultural Chemistry, held by Kimberly, and one in Pure Chemistry, of which Alexander F. Redd was chosen professor. The apparatus was necessarily meagre and only routine work was attempted with the exception of poison analyses, made by the professor as chemical expert for the State courts, some gruesome evidences of which were found by me when I took charge in 1880. The western end of the basement under the present Law Building served as the laboratory of the class in Qualitative Analysis. Quantitative Analysis was taught in the front portion of Person Hall, and there was also the lecture room. The eastern basement room under the Law Building was used by the Agricultural Experiment Station, which was then located here. Its director was Dr. Albert R. LeDoux, who established in 1912 the LeDoux Fellowship, and later this position was held by Dr. Charles W. Dabney, now president of the University of Cincinnati, and under his directorship the station was removed to Raleigh. The University was unable to furnish the proper accommodations for it, and a more central location was desirable, as Chapel Hill was almost isolated in those days of no railroad connections and wretched mud roads.

(To be Continued)

DR. HERTY TO AMERICAN CHEMISTS

The presidential address before the American Chemical Society was delivered by Dr. Charles H. Herty at the general meeting of the society held in Seattle early in September. The address on "Coöperation in Matters Chemical," is published in full in the October number of the Society's *Journal* and in the *Charlotte Observer* of October 10. An appeal is made for closer coöperation between chemists engaged in research in pure chemistry and those in applied chemistry. Dr. Herty said: "I think of research in chemistry as a field whose highest fruition calls for two kinds of service. On the one hand the constant enrichment of the soil, 'pure chemistry'; and on the other the seeding, tending and harvesting, 'applied chemistry'; each absolutely essential, and incapable of its highest fulfillment without the other, using the same methods, demanding identical care, skill, accuracy and thoroughness, and working toward the same end—the uplift of humanity. If this be not the mutual goal, then pure chemistry becomes a selfish toy and applied chemistry a mere tool for greed. In both lines of service the hearty coöperation of all chemists is needed." Speaking to manufacturers regarding their coöperation with chemists, Dr. Herty said: "You can aid in many ways; by furnishing material prepared under factory conditions for use in research in university laboratories, by contributing equipment which will widen the possibilities of such work, by enlarging department libraries which constitute the prime prerequisite of all research laboratories, and by endowing fellowships which will enable many a promising young man, otherwise unable, to continue his work through the unremunerative period of higher training which is requisite if he is to realize his highest possibilities."—*Alumni Review.*

DEPARTMENTAL NOTES

Prof. Charles H. Herty, head of the Department of Chemistry in the University, left Thursday afternoon on a summons to appear before the Ways and Means Committee of the House of Representatives, in Washington, Friday morning, to testify on the dye-stuff situation in the United States. Dr. Herty is one of the leading authorities in the country on this important and perplexing problem. During the month of November he delivered two addresses which dealt directly with the situation: on November 5, on

the "Larger Meaning of the American Dye-stuff Situation," before the Cornell section of the American Chemical Society; the other November 6, on "Dye-stuffs, the Key to the Expansion of American Chemical Industries," before the section of Western New York of the American Chemical Society.—*Charlotte Observer,* January 15.

In addition to the speeches mentioned above Dr. Herty has made a number of others since the last issue of the Chemist. Last spring at Henderson, N. C., he talked on "Dispelling Illusions." His presidential address before the American Chemical Society at Seattle in September is reported elsewhere in this issue. In New York, just after the American Chemical Society meeting, he made the opening address for the First National Exposition of Chemical Industries. On November 7 Dr. Herty addressed the Rochester (N. Y.), section of the American Chemical Society on "National Self-containedness in Chemical Industries," and on the following day he spoke to the Syracuse (N. Y.), section on "America First in Chemical Industry." When the Second Pan-American Scientific Congress assembled in Washington Dr. Herty was one of the speakers. His subject was "Chemical Research as a Directing Aid in the Efficient Utilization of Pine Forests."

Dr. Bell and Mr. Chrisler, of the Physics Department, have recently built an interesting and valuable piece of apparatus in the laboratory. It is an X-Ray spectrometer, an instrument with which the angle of reflection of a pencil of X-Rays from the surface of a crystal can be measured. From this the distance between atomic planes may be calculated, and then the space arrangement of the atoms determined. The X-Ray spectrometer and methods of Research with it have been developed in England by W. H. and W. L. Bragg since 1912.

Last fall Dr. Wheeler spoke before the Elisha Mitchell Scientific Society on "Coffee, Tea, and Cocoa."

Dr. Bell lectured to the Medical Society shortly before the Christmas holidays on "Colloids."

NEW COURSES

The department is constantly striving to improve upon the curriculum. Last year quite a number of changes and additions were made. This year's catalogue will show the following new courses:

CHEMISTRY 13-14. The chemistry of foods and sanitation. Lec-

tures. Both terms, two hours. Dr. Venable. (A course in food analysis is already given by Dr. Wheeler, and these two courses in part supplement each other.)

CHEMISTRY 47-48. Gas analysis, assaying, and spectroscopic analysis. Lectures and laboratory work. Both terms, one hour. Dr. Bell.

CHEMISTRY 95-96. Advanced physical chemistry. Seminar course: Readings and discussions of recent advances in physical chemistry. Both terms, two hours. Dr. Bell.

Advanced physical chemistry, formerly catalogued as Chemistry 7A and given two hours a week for the whole year, is now Chemistry 83, and is given three hours a week only in the fall term. Electro-Chemistry, formerly Chemistry 7B, but now Chemistry 84, is now given in the spring with the same change as was made in Chemistry 83.

LIBRARY NEWS

Since our last issue, which contained a list of the journals in the Library, we have received a number of volumes and smaller parts which were needed to complete certain sets: all of which goes to prove that it pays to advertise.

To Dr. W. Lash Miller, of the University of Toronto, we are indebted for the following:

American Chemist, vols. 1 and 2, 1870-'71.
Journal of the Chemical Society (London), vols. 27, 28 and 29, 1874-'75.
Technisch-Chemisches Jahrbuch, vols. 19 and 20, 1897-'98.
Transactions of the Washington Academy of Sciences, vols. 1 to 11.

The librarian says that he is hoping for another visit from Dr. Miller, and that the next one will be as profitable as the visit last spring.

Dr. E. F. Roeber, of New York, has kindly donated the only missing part of Electrochemical Industry.

At the risk of a charge of repetition, a list of numbers missing from sets is added, in the hope that our good fortune may contine:

American Chemist vol. 3, nos. 10, 12; vol. 4, nos. 1, 4, 10-12; vol. 5, nos. 1-5; vol. 6, nos. 6, 7.
Bulletins of the Bureau of Chemistry, 2, 6, 8, 9, 11.
Chemische Revue über die Fett und Harz-Industrie, vol. 7, nos. 7-12; vol. 8, no. 2.
Dyestuffs, vol. 1, nos. 7, 10, 12; vol. 4, no. 11.
Experiment Station Record, vol. 2, no. 10.

JOURNAL CLUB NOTES

The first meeting of the Journal Club for the year was the annual "get-together and get-acquainted" meeting, held in the "shop" on the night of October 4. Practically all the men, graduates and undergraduates, who are majoring in chemistry, were present. Dr. Herty presided and gave a most interesting account of the Seattle meeting of the American Chemical Society and of the National Exposition of Chemical Industries in New York. After Dr. Herty's talk a social hour was spent in the enjoyment of refreshments and conversation.

Four other regular meetings of the Journal Club were held during the fall. Among the subjects discussed were "The Aniline Dye Situation," "The Concentration of Ores by Flotation," "The Atomic Weights of Cadmium and Columbium," "The 'Cracking' of Hydrocarbons," and "The Space Arrangement of the Atoms in Crystals as determined by the X-Ray Spectrometer."

RESEARCH IN THE DEPARTMENT

Dr. Venable and Dr. Bell are continuing their work on the atomic weight of Zirconium. Among the students, Dr. Herty is directing the work of C. B. Carter and V. A. Coulter; Dr. Wheeler, that of O. A. Pickett; and Dr. Bell, that of L. C. Hall. Carter is working on the action of ammonia on arsenic iodide; Coulter, on the resene of the Cuban or Slash Pine; Pickett is investigating the action of ketones on phenyl semicarbazine; and Hall, the compounds of sodium oxide, arsenic pentoxide and water at 30 degrees from the standpoint of the three component system of the phase rule.

ALUMNI DEPARTMENT

Alumnus, this is your department. Its success depends largely on your support. With your assistance the editors hope to make it one of the most attractive features of the Chemist; but the editors alone can not make it so. Your coöperation is essential. Keep us posted on your movements. A card and a few lines is all that is necessary. If you see wherein the Chemist can be improved make the suggestion. Suggestions and constructive criticism are solicited.

Owing to the lack of reliable information, this issue of the Chemist is *shy* on Alumni news. Advantage is therefore taken of

this opportunity to urge every Alumnus to fill out and mail at once information cards, bearing his address, line of work, and any other facts about himself. Blank cards for this purpose have been mailed to all Alumni members of the Department whose addresses we were able to obtain. If a letter accompanied by such a card has not reached you, the failure is due to the incompleteness of our mailing list. If you have not sent in your information card, please do so as soon as possible. The completeness of the directory which is to appear in the next number depends, in a great measure, on these cards.

ALUMNI NOTES

J. T. Dobbins, Ph.D., '14, continues teaching as associate professor of Chemistry in the Agricultural and Mechanical College, Raleigh, N. C.

H. L. Cox, '14, is assistant chemist in the Department of Agriculture, Raleigh, N. C.

L. B. Rhodes, A.M., '14, remains in the food laboratories, Raleigh, N. C.

J. A. Struthers, '14, has gone with the Hercules Powder Company, Wilmington, Del.

Dr. William B. Phillips, '77, has been selected President of the Colorado School of Mines, Golden, Col.

J. C. Roberts, '84, has been appointed J. A. Holmes Professor of Safety in Mines in the same institution.

A. J. Flume, '14, was married last summer. He is now with the New York Agricultural Experiment Station, Geneva, N. Y.

P. R. Bryan, '13, holds an instructor's position in chemistry in the South Carolina Medical College, Charleston, S. C. He succeeded Mr. Flume, who resigned on account of ill health.

J. Townsend, '13, is with the Arthur D. Little Laboratories, Boston, Mass.

V. C. Edwards, Ph.D., '15, holds the position of professor of Chemistry in Wofford College, Spartanburg, S. C.

C. S. Venable, A.M., '11, is working for his Ph.D. degree at Mass. Tech.

J. L. Henderson, P.D., '15, is in the sales department, S. B. Penick Company. He is located in New York City. His marriage to Miss Moffit Sinclair, of Marion, N. C., is announced for February 15, 1916.

C. B. Hoke, '13, succeeds W. L. Jeffries as instructor in Chemistry in the University.

J. P. Irwin, W. N. Pritchard, Jr., '15, and W. L. Jeffries, Ph.D., '15, are with the Dupont Powder Company, Wilmington, Del. Dr. Jeffries is research chemist for the by-products division.

W. H. Strowd, '09, is at the head of the feed and fertilizer control for the state, Madison, Wis.

B. H. Knight, A.M., '12, is with the Edison Company, East Orange, N. J.

F. R. Weaver, A.M., '13, recently accepted the position of chemist for the Western Cartridge Company, Springfield, Ill.

D. H. Killeffer, '15, is chemist for the Benzole Products Company, Franklin, Tenn.

Ralph W. Perry, '05, Michigan Central Testing Laboratories, Detroit, Mich.

W. R. Holland, '03, Welsbach Light Company, Gloucester City, N. J.

W. A. Rudisill, M.S., '14, was married last August. He is teaching Chemistry in Thiel College, Greenville, Pa.

G. F. Catlett, '04, is consulting chemist at Wilmington, N. C.

THE TWENTY-THIRD PSALM FOR PHYSICAL CHEMISTS

The phase rule has my goat, I shall not want another.

It maketh me to see things queerly.

It trieth my patience.

It leadeth me in the paths of ridicule for my instructor's sake.

Yea, though I wade through the volumes, I am no nearer the end.

And I fear much evil for thy components and eutectics discomforteth me.

I anoint thy triple points with the sweat of my brow. Thy degrees of freedom are as a penitentiary.

I prepare for examinations by making out a cribb.

Surely, if this thing follows me all the days of my life I shall dwell in the bug-house forever.—*Cornell Chemist.*

I DIDN'T RAISE MY BOY TO BE A CHEMIST

(To the air "I Didn't Raise My Boy to Be a Soldier," with apologies.)

I didn't raise my boy to be a chemist,
I brought him up to be my pride and joy,
Who dares to place an apron 'round his shoulder,
And make such smells for mother's darling boy?
Let carbon have no asymmetric atoms,
It's time to throw the benzene ring away,
There'll be no h—l to pay,
If mothers would only say,
I didn't raise my boy to be a chemist.

—Lenzing, '16, in Illinois Chemist.